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UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE

S
PLANTING - Medicine Bow
Nurseries
(Pole Mountain)

ANNUAL NURSERY REPORT

1940

Pole Mountain Nursery
Medicine Bow National Forest

January 1, 1940 to December 31, 1940

S
PLANTING - Medicine Bow
Nurseries
(Pole Mtn.)

January 5, 1941

ANNUAL NURSERY REPORT

for

1940

Pole Mountain Nursery
Medicine Bow National Forest

January 1, 1940 to December 31, 1940

APPROVED:

J. S. VEEDER, Forest Supervisor

Respectfully Submitted:

B. J. ABRAHAMS, Forest Ranger

S
PLANTING - Medicine Bow
Pole Mountain

INDEX

		Page
1.	Capacity of Nursery	1
2.	Water System	2
3.	Seedlings	2
	Nursery Stock On Hand	3
4.	Transplants	6
5.	Stock Distribution	9
	Nursery Stock Distributed	11-13
6.	Seed Collection and Extraction	14
7.	Experiments	14
8.	Protection	17
9.	Improvement and Equipment	17
10.	Labor Supply	18
11.	Costs	18

S
PLANTING - Medicine Bow
Nurseries
Pole Mountain

ANNUAL NURSERY REPORT
POLE MOUNTAIN NURSERY

for

1 9 4 0

1. Capacity

(a) Area in seedlings, transplants, soiling crops, and idle land available for nursery beds.

Species	Area in square feet		
	Seed Beds°		Transplants°°
	2-0	3-0	2-1
Pinus ponderosa	4594		19,320
Pinus contorta	193	386	168
Pseudo tsuga Tax.	578	578°°°	
Picea engelmanni	193	193	420°°°
Picea pungens	193	193	
J. Scopulorum	772		
TOTALS	6523	1350	19,908

Square feet in nursery beds	27,781
Square feet in soil crops	15,328
Idle land available for beds	87,085
Total cultivated land	130,194 Sq. Ft.

(b) Possible capacity of nursery by class of stock based on present total nursery grounds.

Nursery being discontinued.

° Includes 26% of area for paths, but not roads. (4' beds, 14" paths)
°° Includes 9½% of area for paths, but not roads. (6' beds, 12" paths)
°°° Area in trees all season, but shipped out fall.

(c) Approved production plan for remainder of nursery existance:

None. All trees to be shipped to field or to other nurseries in spring 1941.

(d) Nursery stock on hand at close of year.

(See Form 132, Page 3)

2. Water System

(a) Amounts of water used, source and method of distribution:

All watering of the nursery stock was done by overhead sprinklers. While the weather reports indicate a good rain year, they do not indicate that practically all the rain received was in the form of flash floods. These rains did very little good as far as soaking up the soil and the springs all over Pole Mountain were drying up. The spring above the nursery never furnished any water except for a few days following some of the real heavy downpours. The water after these floods, was very muddy and the spring was kept shut off to prevent silting of the reservoir.

The big spring below the nursery area was very much reduced in flow and at one period dropped to $4\frac{1}{2}$ gallons per minute. This necessitated the method of keeping the reservoir filled for a reserve and pumping to the beds every day watering was required.

Transplants were watered from three to three and one-half hours daily until July 1, and the same amount every other day or every third day until September 12 when the water was reduced to harden off the stock for winter. This plan did not work as we had an excessive amount of precipitation the rest of the month. However, the weather was such following this rain that the trees all hardened off in excellent shape.

(b) How amounts are applied and times of watering were determined:

The method used to determine the need for water was the same as used previously, namely the testing with the surveyor's pin. It was felt that a smaller amount of water was used than thought desirable, but all water that could be pumped was used. The transplants do not show the development expected, but it is believed that the stock is very hardy.

(d) Recommended changes in system.

None needed.

3. Seedlings

(a) Fertilizing:

Form 132
(Revised July 1, 1912)

UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE

NURSERY STOCK ON HAND

Pole Mountain NURSERY Medicine Bow NATIONAL FOREST October 14, 1940, 193
(Date of estimate)

SPECIES	NUMBER OF M.	YEARS IN SEED BED	YEARS IN TRP. BED	SOURCE OF SEED	HEIGHT	CONDITION
Pinus ponderosa	319.8	2	0	Bailey, Pike N. F.	4"	Excellent
Pinus contorta	11.3			Pole Mountain	2"	Fair-small
Pseudo tsuga taxifolia	30.9			Pole Mountain	3"	Good-Some root rot
Picea pungens	15.3		3-0	French Cr. Med.Bow	4"	Excellent
Picea engelmanni	13.9			Brooklyn Lk." "	2"	Good
J. Scopulorum	51.8			Pole Mountain	4" to 10"	Excellent
TOTAL	443.0	2	0			
Pinus contorta	24.0	3	0	Pole Mountain	4½"	Excellent
Picea engelmanni	14.4			Brooklyn Lk.Med.Bow	4"	Good
Picea pungens	12.1			Keystone, Med. Bow	5"	Excellent
TOTAL	50.5	3	0			
Pinus ponderosa	361.5	2	1	Bailey, Pike N. F.	4" - 6"	Good
Pinus contorta	2.5			Pole Mountain	5"	Good
TOTAL	364.0	2	1			
Trees of all age classes on hand - 857.5 M						
In addition to the above 22.1 M trees were shipped to field for fall planting.						

Bernard J. Abrahams
(Name)
Forest Ranger
(Title)

Jan. 5, 1941, 193
(Date of report)

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Soil crops were planted on the idle area as it was definitely known at the time whether the seedling would be transplanted at Pole Mountain or shipped to Monument for transplanting. The soil crop was Field Peas and Oats. A very good stand was obtained and this was disced and plowed under in August.

Ammonium Sulphate was applied to the beds as some yellowing was showing up in the beds. This was applied at the rate of 1/8 oz. per square foot in solution thru the sprinkler system. This did not overcome the yellowing and it was found necessary to apply Iron citrate. It is felt that the application of Iron would have been more effective if it had been applied at the time the Ammonium Sulphate was applied.

(b) Preparation of beds:

No seed beds were prepared this year.

(c) Sowing and sowing data:

No seed was sown.

(d) Table of sowing:

None

(e) Germination:

None

(f) Shading:

All trees were shaded until danger from frost was past. Thereafter Douglas Fir, Engelman Spruce and Blue Spruce were the only species on which the slatting was left on for shade. All 3-0 beds were uncovered June 22.

(g) Watering:

All watering was by overhead sprinklers operated by oscillators. As much of the watering as was possible was done in the early evening to save water.

(h) Cultivating:

Seedlings are not cultivated at this nursery.

(i) Root pruning:

No root pruning was done as we were too short of water to try it.

(j) Weeding:

Weeding was all done by hand. Weeds were well under control at all times. To accomplish this control a couple of CCC boys were used around the nursery whenever necessary to maintain the beds and grounds. No weeding was done after September 20.

(k) Mulching:

No mulching of seed sown beds was necessary this year as no seed was sown. In the 2-0 and 3-0 beds all spruce and fir beds were mulched with pine needles. The mulch is applied on the slatting which is supported by 2x6's or 2x8's. The mulch is applied about four inches deep after burlap is laid on the slatting to prevent the mulch falling thru onto the trees. All other species are protected for the winter by placing the protective frames on 2x4's.

(l) Size and development of seedlings by species and age class:

(See Form 132, Page 3 of this report)

(m) Injuries and their treatment:

1. Frost: no losses were experienced from frost this year.

2. Disease:

Root rot. Some losses occurred in all beds from root rot. While the losses were not serious some of the trees will have to be culled out when they are transplanted. The fall estimate is based on the trees which will be left after culling. This root rot evidently has some connection with the reduced water table as some yellowing showed up in patches on the lawn also. Iron was found to be the best cure. Where the yellowing in the beds appeared and Iron was applied as soon as noticed, the trees recovered within a few days. Further comments on the subject will be found under experiments.

3. No losses or damage resulted from rodents although it was necessary to keep a constant vigil for ground squirrels around the nursery area.

(n) Losses and their effect on the production schedule:

All seedlings are well above the production figure authorized. This gives a very good opportunity to pick only the best stock for transplanting. Although the fall estimate allowed for culling a heavier cull can be made if found necessary.

The production of stock available in the spring of 1942 should be well above the authorized number even after a strict culling.

Losses in the transplants will be discussed under transplants.

PROBABLE PRODUCTION AND DEFICIT
OF TRANSPLANT STOCK IN 1942

Present Age Class	Species	Quantity On Hand	Expect Loss %	Probable Product M	Quantity Desired	Excess	Deficit
2-0	Pinus Ponderosa	319.8 M	5	303.8	200.0	103.8	
	Pseudo Tsuga Tax	30.9 *	10	27.8	25.0	2.8	
	J. Scopulorum	51.8	5	49.2	25.0	24.2	
3-0	Picea Pungens	12.1	5	11.5	10.0	1.5	
	Picea Engelmanni	14.4	10	13.0	10.0	3.0	
	Pinus Contorta	24.0	5	22.8	10.0	12.8	
	TOTALS	453.0		428.1	280.0	148.1	

* To be produced as 3-0 Stock.

(c) Recommended changes in seedling culture:

As no more trees are to be produced at Pole Mountain no changes are recommended.

(d) Sowing schedule for the coming year:

No further seed sowing is contemplated.

4. Transplants

(a) Fertilizing.

Ammonium Sulphate was applied this spring to the transplant beds as a number of beds showed yellowing. The Ammonium was applied in solution thru the overhead sprinklers. The ammonium, however, was not the cure and it was necessary to purchase Iron sulphate and an application of this was sufficient to eradicate the clorosis, but some of the beds showed the effect of the clorosis in the shortness of the growth.

(b) Preparation of transplant area.

As early as was possible in the spring the area to be transplanted was plowed, disced and levelled. The beds are staked out for the transplant tapes and overhead lines.

(c) Method of transplanting.

The area in which transplanting is to be done is staked for the beds as soon as the ground preparation is completed. The beds are laid out on the basis of 6x36 foot beds and allowance is made for a 12 inch path between beds

and a 24 inch cross path which also acts as a ditch. The beds are laid out so that three beds with the paths are on each side of the sprinkler lines. As a rule the beds are laid out so that there are five beds end to end. Thus, each sprinkler line waters 30 6x36 foot beds. Steel tapes are stretched as a guide, and the tapes have alternate copper and brass markers spaced at six inch intervals. This year the transplant boards developed at Monument were used with excellent results. These are the Yale transplant boards, but are made of aluminum. The trenches are all made with the steel hand trencher. The transplant crew this year consisted of six men.

3*	Threaders
1	Trencher
1	Tender
1	Boardman

*Due to the culling it was found that working three men in the threading coop speeded up the job. If enough coops were available it had been planned to try using two coops for each boardman. This should work very well where experienced boardmen are available.

(d) Watering.

The transplants are watered as soon as possible after transplanting to avoid any possible drying out. The tender waters the beds that have been transplanted every chance and the nurseryman watered them again after the days work. As soon as a set of beds is completed, the overheads are erected and the beds given a heavy watering.

The trees are watered every day during the early part of the season for three to four hours depending on the water available. This year 3 hours was the general practice. In August the water is reduced to every other day unless the temperature reaches 80 degrees.

The need for water is determined by the use of the surveyor's pin. This method indicated that we should have given the trees more water to secure deeper penetration as the subsoil was dry, but due to the shortage as much as was possible was supplied. These trees should prove to be hardy.

(e) Cultivation.

The transplants were not cultivated.

(f) Root Pruning.

Transplants are not root pruned.

(g) Weeding.

Weeding is all done by hand as required. Weeds were not a big problem this year and after the first weeding a couple of CCC boys were

used from time to time to keep out weeds. The beds were weeded in September for the last time.

(h) Mulching.

Mulching of transplants was not necessary this year as all species requiring mulching were shipped to the field for fall planting. The remaining trees were all protected for the winter by slatting supported on 2x8's. The windward end of the beds are closed off, but the other end is open except for the slatting hanging over the end, this also provides for drainage.

(i) Size and development of transplants by species and age classes:

(See Form 132, Page 3 of this report)

The stock shipped this fall is not indicated on this Form, but the Picea engelmanni transplants varied from 6 to 10 inches with the average approximately 7½ inches. The roots on this stock were exceptionally good.

(j) Density at time of transplanting and at time of fall inventory.

Species	Source	At time of transplanting per sq. ft.	At close of Season Per Sq. Ft.	Percent Loss
Pinus Ponderosa	Pole Mountain	24	23.28	3.0
Pinus Contorta	Pole Mountain	24	21.43	10.7 *
Picea Engelmannii	Pole Mountain	24	22.87	4.7
	Average (weighted)	24	23.26	3.1

*Experimental

(k) Injuries and their treatment.

Losses this year are considered light. However, due to floods and to a clorosis some damage resulted. This damage is most noticeable where the flood broke thru the dike at the upper end of the transplant beds and silted in on some beds and washed out trees in other beds. The clorosis caused very little actual loss but some of the trees will have to be culled for lack of development.

(l) Losses and their effect on the production schedule and planting plans.

As indicated by the figures on Form 132, the production next spring is well able to take care of the authorized production. Even after a heavy culling to eradicate all poor trees there will still be more than the number authorized. It is expected that between 300 M and 310 M trees will be left after the trees are culled to secure the best. This should mean a planting job of approximately 476 to 492 acres. The above figures do not include the trees which were planted this fall.

(m) Recommended changes in transplant culture.

No changes are recommended at this time.

(n) Table of stock transplanted spring 1940.

Species	Quantity	Age Class	Nursery from which obtained
Pinus ponderosa	372.6 M	2-0	Pole Mountain
Pinus contorta	2.8 M	2-0	Pole Mountain
Picea engelmannii	8.5 M	3-0	Pole Mountain
TOTAL	383.9 M		

(o) Table of stock to be transplanted spring 1941.

Species	Quantity	Age Class	Nursery from which obtained
Pinus ponderosa	319.8	2-0	Pole Mountain
Pinus contorta	24.0	3-0	Pole Mountain
J. Scopulorum	51.8	2-0	Pole Mountain
Picea engelmannii	14.4	3-0	Pole Mountain
Picea pungens	12.1	3-0	Pole Mountain
TOTAL	422.1		

5. Stock Distribution

(a) Lifting.

Lifting of trees for distribution is done by hand, and with the present plans it is not felt necessary to secure a digger for this job.

(b) Culling.

Trees were culled before shipment to the field both for size and quality. As the trees were dug they were brought into the shed where a table had been erected. This table is covered with burlap and kept wet so that the trees will not dry out in handling. After the trees are culled one man is used to gather up the good trees and make them into bundles of approximately 50 per bundle. These bundles are then packed into the boxes in layers and moss is spread between each layer of bundles. This bundling is done only for Pole Mountain planting projects.

A foreman is always in the shed with the culling crew and gives close supervision to the job.

(c) Packing.

All trees for the Pole Mountain project were bundled as stated above. For other Medicine Bow projects, the trees were baled and were shipped by CCC truck to the job the day they were packed.

(d) Shipping.

Trees were trucked directly to the planting jobs on the forest.

(e) Recommended changes in distribution.

No changes are recommended.

(f) Table of nursery stock distributed spring 1940.

See Form 150, Page 11.

(g) Table of nursery stock shipped fall 1940.

See Form 150, Page 12.

(h) Table of nursery stock available for distribution spring 1941.

See Form 150, Page 13.

(i) Table of stock available for distribution fall 1941.

See Form 150

(j) Summary of stock distributed spring 1940.

Species	M Plants				Total
	Forest Service		Cooperative		
	Seedlings	Transplants	Seedlings	Transplants	
Pinus ponderosa	0	222.0	0	4.0	226.0
Pinus contorta	0	20.4	0	0	20.4
Picea engelmannii	0	14.6	0	0	14.6
Pseudo tsuga tax.	23.7	0	0	0	23.7
TOTAL	23.7	257.0	0	4.0	284.7

(k) Summary of stock distributed fall 1940.

Species	M Plants				Total
	Forest Service		Cooperative		
	Seedlings	Transplants	Seedlings	Transplants	
Pseudo tsuga tax.	14.0	0	0	0	14.0
Picea engelmannii	0	8.1	0	0	8.1
TOTAL	14.0	8.1	0	0	22.1

Form 150
(Revised July 1, 1912)

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

NURSERY STOCK DISTRIBUTED

Pole Mountain Nursery Medicine Bow National Forest Spring 1940 (Season), 193

FOREST SENT TO	NUMBER OF M	SPECIES	YEARS IN		SOURCE OF SEED	COST PER M		
			SEED BED	TRANS-PLANT BED		STOCK	STOCK DISTRIBU-TION	TOTAL
Medicine Bow								
Pole Mountain	122.0	Pinus ponderosa	2	1	Pole Mountain	6.40	.91	7.31
Centennial	14.6	Picea engelmannii	3	1	Keystone, Med. Bow	11.00	.91	11.91
	23.7	Pseudo tsuga tax.	3	0	Pole Mountain	3.40	.91	4.31
	20.4	Pinus contorta	2	1	Foxpark, Med. Bow	7.76	.91	8.67
Foxpark	100.0	Pinus ponderosa	2	1	Pole Mountain	6.40	.91	7.31
Charles S. Weller Dept. of Agriculture Pierre, S. D.	4.0	Pinus ponderosa	2	1	Pole Mountain	6.40	1.32	7.72
TOTAL	284.7							

BERNARD J. ABRAHAMS
(Name)

January 5, 1941, 193
(Date of report)

Forest Ranger
(Title)

U.S. GOVERNMENT PRINTING OFFICE 8—9054

Form 150
(Revised July 1, 1912)

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

NURSERY STOCK DISTRIBUTED

Pole Mountain Nursery Medicine Bow National Forest Fall 1940 (Season), 193

FOREST SENT TO	NUMBER OF M	SPECIES	YEARS IN		SOURCE OF SEED	COST PER M		
			SEED BED	TRANS-PLANT BED		STOCK	STOCK DISTRIBU-TION	TOTAL
Pole Mountain Medicine Bow	14.0	Pseudo tsuga tax.	3	0	Pole Mountain	3.46	.91	4.37
	8.1	Picea engelmannii	3	1	Pole Mountain	6.66	.91	7.57
TOTAL	22.1							

BERNARD J. ABRAHAMS
(Name)

January 5, 1941, 193
(Date of report)

Forest Ranger
(Title)

U.S. GOVERNMENT PRINTING OFFICE 8—9054

Form 150
(Revised July 1, 1912)

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

NURSERY STOCK DISTRIBUTED

Pole Mountain Nursery Medicine Bow National Forest Spring 1941 (Season), 193

FOREST SENT TO	NUMBER OF M	SPECIES	YEARS IN SEED BED	YEARS IN TRANSPLANT BED	SOURCE OF SEED	COST PER M STOCK	COST PER M STOCK DISTRIBUTION	COST PER M TOTAL
	361.5	Pinus ponderosa	2	1	Bailey, Pike N.F.	4.84	.91	5.75
	2.5	Pinus contorta	2	1	Pole Mountain	5.27	.91	6.18
TOTAL	364.0							

3/14/41 Sent to Bighorn Ass Service Sta Bailey Colo

January 5, 1941, 193
(Date of report)

BERNARD J. ABRAHAMS
(Name)

Forest Ranger
(Title)

U.S. GOVERNMENT PRINTING OFFICE 8—9054

(1) Summary of stock to be distributed Spring 1941.

Species	M Plants				
	Forest Service		Cooperative°		
	Seedlings	Transplants	Seedlings	Transplants	Total
Pinus ponderosa	0	361.5	0	0	361.5
Pinus contorta	0	2.5	0	0	2.5
TOTAL	0	364.0	0	0	364.0

° None contemplated at present.

6. Seed collection and extraction

(a) Collection, extraction and costs.

No seed was collected or extracted this year.

(b) Inventory of seed.

No seed remains on hand.

7. Experiments

(a) Completed during the year.

1. The experiment on heeling in of trees in water failed, due to an unforseen factor. The trees were bundled in burlap 50 to a bundle. Two bundles of each species were used. One bundle was wholly submerged and one bundle was submerged to the ground line. The experiment failed as it was found on checking early in the spring, that a Black water bug had been girdling the stems. This girdling took place at the point where the burlap ended just below the needles.

This experiment is thought to be worth trying again, but the bundles will be enclosed in a fine mesh wire screen box to prevent the water bugs from operating.

2. Due to a clorosis showing up this season it was necessary to treat the beds, both seedling and transplant, with chemical applications.

Ammonium Sulphate was used first at the rate of 1/8 oz. per sq. ft. This was used in a very weak solution to prevent any chance of burning. To apply this a tree spraying outfit was used which was equipped with a 100 gallon tank with an agitator and a pump. The Ammonium was dissolved in the tank of water and the agitator mixed it. The discharge line was then connected to the sprinkler lines and thus applied. The power unit was not quite strong enough to operate the long transplant lines and it was found that by slightly turning the water pressure on from the nursery water system, the lines could be made to operate. One tank full of solution was used for each line, thus, assuring an even covering. After the solution was applied the water was turned on to help the penetration and to further weaken the solution. This did not cure the clorosis and it was necessary to apply Iron citrate and Iron Sulphate.

The Iron citrate was on hand and the Sulphate was purchased. The Iron was also applied in solution at the same rate as the Ammonium, but at the same time one bed of ponderosa seedlings was used as an experimental area to determine the correct strength required for the best results. This area was staked off in 4x4 plots with a 4x2 plot between each to prevent over-lapping and also to act as a check plot. The plots were all marked and the amounts used varied from 1/16 oz. to 1 oz. In addition to the different strengths of the solution used one plot was used to soak the solution into the ground and another plot was used to apply directly to the needles without washing off. The best results were obtained in the area where it was soaked in where 1/2 oz. was used, and where it was applied to the needles 1/4 oz. was best. Where the solution was applied to the needles, 1/2 oz. and over burned spots on the needles. More Iron sulphate was ordered to apply another application after the experiments showed up, but by the time it arrived, it was too late to use. Some loss and damage occurred, but not enough to upset the production schedule.

(b) Proposed.

No experiments are proposed at this time.

(c) Weather data.

Weather records for Pole Mountain are still not complete enough for the Weather Bureau to issue a "normal" figure, however, a comparison with the years the records have been kept here furnishes us with a fair comparison.

Temperatures were not unusual this season having very little freezing during the summer months and no exceptionally warm days. We did, however, have a number of days when the temperature got up into the 80's. In July we had five straight days when the temperature was in the eighties. July and August were frost free.

Precipitation was not very much out of line for the year, but was short in snow and what we did have all seemed to soak into the ground with very little runoff. This was no doubt due to the fact that the ground was exceptionally dry when winter started and the snow water was absorbed in place. During the summer the precipitation was sufficient, but the monthly totals do not give a picture of what took place. Actually, the largest part was in the form of flash floods and very little good was done except in the bottoms. For example, a storm in July deposited .87 inch in twenty-one minutes.

This runoff did very little to help the spring at the nursery and we actually were short of water. As stated above, it is felt that it was largely due to the ground being so dry from last year.

For table of temperatures and precipitation, see page 16.

POLE MOUNTAIN WEATHER DATA
1 9 4 0

Data taken from U. S. Weather Bureau publication Climatological Data.

Month	Temperature Data				Precipitation (Inches)	
	Mean Max.	Mean Min.	Mean Temp.	Departure From Normal°	1940	Departure From Normal°
December °°	36.6	17.7	27.2	3.8	.37	- .44
January	24.0	7.5	15.8	-2.7	1.37	.63
February	28.6	12.7	20.6	1.9	1.11	.26
March	38.4	19.0	28.7	3.6	1.06	- .19
April	44.7	22.6	33.2	.8	2.25	- .42
May	57.4	32.3	44.8	2.7	2.22	- .48
June	69.7	40.8	55.2	2.9	.86	- .68
July	74.0	48.0	61.0	.8	3.10	1.33
August	72.7	43.7	58.2	--	1.17	- .28
September	63.6	40.1	51.8	1.4	3.73	2.45
October	54.4	30.5	42.4	2.2	.70	.06
November	35.5	14.8	25.2	-2.7	.87	.30
~~December~~						

Total Precipitation for year 18.81
Excess or deficiency 2.54

° No Normal figures established for Pole Mountain, figures used are averages for past nine years.

°° December 1939 figure. December 1940 not available at time of this report.

8. Protection

(a) Rodents.

Mice. No mouse damage was found this year. Pole Mountain never did suffer from mouse damage to seedlings or transplants, but losses from mice getting into the seed beds were known. No seed beds were sown and, therefore, no losses or damage occurred. Poison is set out from time to time around the bed areas during the winter to prevent any mice getting into the beds. In addition a mouse fence is erected around the beds.

Gophers, Ground Squirrels, etc. A constant watch is kept for these pests as they can do a lot of damage in a short time. Shooting them has been found to be the best elimination process. Once in a while one of the squirrels will dig a hole in the beds, but if close watch is kept no great damage results.

Rabbits. No damage could be found this year which could be attributed to rabbits. Very few rabbits have been seen in the vicinity of the nursery this year and with the winter protection on no damage from rabbits should be found.

Porcupines. This creature has not done any damage to the seedling or transplant beds, but some trees adjacent to the bed area were severely damaged this past year. The culprit was disposed of and no further damage in the area has been found.

(b) Other protection.

Protection against hail was not found necessary this year although precautions were taken. The hail screens were placed in such a way that a few men could cover the entire seedling area in a very few minutes.

Frost protection consists of canvas covers rolled out over the protective frames. In addition, the ends are blocked with boards. This, it has been found makes a difference of from 6 to 10 degrees, which is enough usually to prevent frost damage. As no seed was sown this year, very little frost damage was found.

9. Improvements and Equipment

(a) Equipment purchased or constructed 1940.

1. A tree digger for the lifting of the seedlings to be transplanted was secured from the Monument nursery and this year for the first time the digger was used at Pole Mountain.

The digger was alright, but the power unit we had, was not good enough to pull the digger. The power was an obsolete John Deere that can just about pull itself. After lifting one bed it was decided to go back to hand digging as the trouble involved in operating the digger with the John Deere was too much and did not save any time. The digger is still at Pole Mountain and in the event some other source of power can be made available at the time of transplanting, it should be used again.

2. This year we received four new transplant boards made of aluminum from the Monument nursery and these were used all during the transplanting. These boards work very well and no trouble was experienced with trees falling out of the notches as we had in the old type boards.

No other construction was undertaken this year and no materials were purchased for other work.

(b) Comments on new developments, uses, and future needs.

No new equipment or development work is needed at Pole Mountain in view of the present plans.

10. Labor Supply

(a) Supply, suitability, etc.

All work at the Pole Mountain Nursery was done with CCC labor which was furnished from the Pole Mountain Side Camp situated at the nursery. The work consisted of all phases of nursery work with the exception of the preparation of the nursery for winter. The work done by the CCC was of very good quality and this it is felt is largely due to the supervision given them.

The work consisted of uncovering of the beds in the early spring, distribution, culling of the transplants before shipment to the field, transplanting, weeding and general maintenance. The boardmen this year were not as fast as the men last year, but a very good job was done and no quality was ever sacrificed for speed.

The fall work of distribution was also done by the CCC, but the covering of the beds for the winter was done by the ERA crew as the number of men at the side camp was very low. We were very fortunate in securing a good ERA work crew and the foreman is the best ERA foreman ever on Pole Mountain.

(b) Recommended changes.

No changes in the labor use at the nursery is contemplated as long as the CCC Side Camp is here.

11. Costs.

(a) Comparison of costs by years per M trees.

PROJECTS	:1940°:1939	:1938	:1937	:1936	:1935	:1934	:1933	:1932	:1931°°
1 yr. sdlgs.:	°°°	:1.349	:1.334	:1.851	:7.636	:4.729	:5.144	:5.39	: 2.01: 2.25
2 yr. sdlgs.:	.506:	.520:	.641	:1.109	:6.515	:5.145	:3.261	:6.45	: 2.53:11.02
1 yr. trans.:	2.729:	3.227:	3.670	:5.223	:12.836	:5.959	:4.835	:9.15	: 6.59: 9.54

° See summary sheet column 20 at end of this report
°° No previous production.
°°° No production 1940.

(b) Allotments by projects, Fiscal Year 1941.

No allotment has been made for the present fiscal year, the plan being to run the nursery as a CCC project. If for some reason this should be discontinued on or about March 31, an allotment as shown will be needed.

First Year Seedlings	$ 0
Second Year Seedlings	0
Transplants	600.00
Distribution	300.00
Total	$900.00

(c) Allotment estimate, Fiscal Year 1942.

If the seedling stock is to be transplanted here and the continued use of some form of relief labor is not available an allotment as shown below will be needed.

Maintenance of Nursery	$250.00
Maintenance of Improvements	50.00
Maintenance of Equipment	50.00
Total	$350.00

(d) Comment on costs.

Cost figures contain labor charges for CCC enrollees, CCC foremen, ERA labor and ERA foreman, and for forest officers time. In addition, motor vehicles of both ERA and CCC were included. It will be noted that very close comparison with last year exists in the costs of second year seedlings and in the distribution but in the transplants a considerable drop occurred. This lowering of the cost for transplants is in a large way due to the increased number of trees transplanted. We were very fortunate this season in having an experienced boardman from last year. The man who was employed as a boardman last year on P&M, was this year in the CCC and he was again used as the leader. A very good bunch of CCC enrollees

was at the camp all during the transplanting and besides doing a good job, they planted a very good days number of trees. Maintenance such as weeding was limited to the use of two very good enrollees whenever it was needed. Winter protection was entirely done by the use of ERA labor. This crew has a very good foreman.

The distribution this year was worked the same as last year and practically all the trees were for the forest. Only one order for 4-M trees was shipped elsewhere and no significant difference was made in the cost.

The low cost for 2-1 transplants will be somewhat increased at the time of distribution as they are to be culled heavy. It is expected that the cost might increase as much as 12¢ per thousand. This will still be lower than ever before.

Trees distributed this fall and to be distributed in the spring of 1941 will be approximately $4.37 for 3-0, $5.50 for 2-1, and $6.50 for 3-1.

In the event that the seedling stock is shipped to another nursery for transplanting the approximate cost will be between $2.00 and $2.50 not including distribution charges which it is estimated will not exceed 30¢ per thousand.

This report will no doubt be the last report for the Pole Mountain Nursery as after this report there will be nothing left at the nursery except the stock to be distributed.

S
Nurseries

STATEMENT OF NURSERY COSTS

Pole Mountain Nursery, Region 2 C.Y. 19 40

Projects (1)	Number of Trees M (2)	Basis for Distribution of Minor Project Costs: Man Hours (3)(a)	Animal Hours (4)	Tractor Pump Hours (5)	Auto Miles (6)	Direct Charges: Amount (7)	Per M (8)	Preliminary Distribution of Minor Project Costs: Proj. #7 (9)	Proj. #8 (10)	Proj. #8a (11)	Proj. #8b (12)	Charges Deferred to Future Years (13)	Deferred Charges from Previous Years (14)	Direct Distribution of Minor Proj. #6 (15)	Distribution of Depreciation (16)	Net Cost of Minor Projs. to be Prorated (17)	Final Proration of Minor Proj. Costs to Major Projs. (18)	Total Cost Major Projects: Amount (19)	Per M (20)
2nd yr. seedlings	443.0	481			72	151.40	.298		3.84					6.92	52.06		42.55	256.77	.506
3rd yr. seedlings	64.5																		
1st yr. transplants	372.1	1941			10	615.52	1.654		.65					17.48	210.09		171.71	1015.45	2.729
Distribution	306.8	534				172.60	.562								57.80		47.24	277.64	.905
TOTALS		2956			82	939.52			4.49				(b)	24.40	319.95	(c)	(d)261.50	1549.86	
Soil Fertility		44				24.40(b)													
Motor Vehicles (Stake)	.065 Mi.					12.59													
Motor Vehicles(Pickup)	.045 Mi.																		
Pump	.083 Hr.	5		171		14.20					14.20					14.20			
Administration		104			96	72.80			4.32							77.12			
Maintenance		431			84				3.78							170.18			
TOTALS		584		171	180	290.39			8.10		14.20					261.50	(d)		
Grand Total		3540		171	262	1229.91			12.59		14.20			24.40	319.95	261.50	261.50	1549.86	

(a) Includes CCC labor @ $1.50 per 7 hr. day, CCC Foreman's, F. O. Time at actual wages and ERA labor @ .39 per hr.
(b) Cost of soil fertility distributed on basis of 27,781 sq. ft. in nursery beds, which equals $0.000878 per sq. ft.
(c) Taken from Forms 21j and distributed on basis of 2,956 man hours worked on projects 1-5, which equals $0.10824 per man hr. (Total figure differs from last year due to water system being charged to forest.)
(d) Distributed on basis of 2,956 man hours worked on projects 1-5, which equals $0.08846 man hr.

Col 19 1549.86
plus Col 13 —
1549.86
minus Col 14 —
1549.86
minus Col 16 319.95
Col 7 = 1229.91